

CLAIMS

1. An ionically conductive ceramic electrolyte element for an oxygen generator comprising:
- a plurality of tubes having interior and exterior surfaces and having open and closed ends;
- a tube support member having first and second surfaces through which extend openings for receiving said open ends of said plurality of tubes, said open ends of said tubes appearing at said second surface and
- means for forming a manifold for collection of gasses from said open ends of said tubes.
2. The ceramic electrolyte element for an oxygen generator described in claim 1 wherein said plurality of tubes and said tube support member are formed as an integral structure by molding process.
3. The ceramic electrolyte module for an oxygen generator described in claim 1 wherein said means for forming a manifold includes a joining member extending from said tube support member adapted to be joined to a like member on a second said ceramic electrolyte element.
4. A ceramic oxygen generator comprising:
- an ionically conductive ceramic electrolyte including:
- a plurality of tubes having interior and exterior surfaces and having closed and open ends;
- a tube support member having first and second surfaces through which extend openings for receiving said open ends of said plurality of tubes, said open ends of said tubes appearing at said second surface;

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a first electrically conductive coating covering said exterior surfaces of said plurality of tubes and said first surface of said tube support member forming a first electrode connectable to a source of electrical potential of a first polarity;

a second electrically conductive coating covering said interior surfaces of said plurality of tubes and said second surface of said tube support member forming a second electrode connectable to a source of electric potential of a second polarity, and

means forming a manifold for collecting gasses appearing at said open ends of said tubes and said second surface of said tube support member.

5. The ceramic oxygen generator described in claim 4 wherein said plurality of tubes are formed into rows and columns on said tube support member with portions of said first and second surfaces interposed between the rows and columns and further comprising:

means forming an electrical surface from said first and second electrodes wherein first and second electrode portions of each of said tubes in a column are electrically connected in parallel and wherein each of the tubes forming a row are electrically connected in series.

6. The ceramic oxygen generator described in claim 5 wherein said means forming an electrical circuit comprises:

cuts formed in said first and second electrodes between said columns of tubes, said cuts extending longitudinally of and between the columns of tubes so that the portions of said first and second electrodes on opposite sides of each said cut are electrically separated, vias extended through said first and second surfaces adjacent each of said tubes and

electrical connections extending through said vias connecting a first electrode portion of each

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said tube in a row to a second electrode portion of a tube in an adjacent column in the same row to form a series connection across each row of tubes.

- 4 7. The ceramic ^{element} ~~oxygen generator~~ described in claim ³ 6 wherein said electrical connections are constituted by the material forming said first and second electrodes coating the surfaces of said ceramic electrolyte extending through said vias.

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